1050 Installation

for UltraSpeed™ Hardware

U S DOUBLER INSTALLATION MANUAL

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Installation Improvement! – 12/20/84

Notice there is no longer a wire coming from the U8 hybrid module. This design improvement will allow easier installation. Please ignore all mention of this wire and removal of U9 in the installation manual.

Correct orientation of both the U8 and U10 ICs is with the end notch towards the front of the drive. Any writing on the ICs will be reading from the front to the rear of the drive.

If the U8 module is installed backwards or not making a good pin connection, or if jumpers JP1 – JP4 are in the wrong positions (top of page USD-5), the drive will not spin.

U S DOUBLER INSTALLATION

Brief overview:

The U S Doubler consists of two ICs which must be installed in your Atari 1050 disk drive. One of these is a single 24 pin chip (U10) and the other is a hybrid 24 pin module (U8) with a wire coming out. These are to be installed in the corresponding sockets on the 1050's Printed Circuit Board (PCB). The jumper wire coming from the new U8 should be tucked into the socket of U9 with pin 17 as shown in the diagram (see Figure 1). Jumper wires JP2 and JP4 should also be in with JP1 and JP3 out (This is the case with all drives we have seen so far but should be checked anyway).

Before installing:

If your drive doesn't work properly it is a good idea to get it repaired before attempting to install this product. If after reading these instructions you feel this installation is not for you then talk to your local dealer or service center about it or send us the drive. We install this product for $15.00 including UPS ground shipping one way. This low price is good only before you attempt to install it. For later services see our prices at the end of this manual. For installation by ICD, send and mark the box to:

ICD, Inc.
828 Green Meadow Avenue
Rockford, IL 61107

Attn: 1050 Install

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Please include a check for $15.00, the complete drive less cable and power supply, and the ICD product. Our turnaround is generally 48 hours.

Still want to install it?

Tools needed:

#2 Phillips head screwdriver
Medium to small flat blade screwdriver
A permanent ink marking pen for marking connectors during disassembly
An empty dish for holding parts
A clean well lighted work surface
Small needlenose pliers (optional)
20-35 watt small tipped soldering iron (optional)

Let's Get Started!

Cover removal:

Turn the 1050 on its back and remove the 6 phillips head screws. (4 are recessed and 2 are on the front bezel) Place the screws into your parts dish.

Carefully turn the drive back onto its feet and set it down. Lift the rear of the top cover about 1/2 inch then slide it towards the front and lift the cover and bezel off as one piece. Set these aside.

Things to look for:

Notice how the drive assembly sits in the case and note the four black rubber washers under the drive frame. These usually fall out when removing the drive. There are also four steel pins at the center of these washers which fall out during disassembly of the early 1050 drives (they are glued in on the later drives). Notice the wires which connect to the PCB towards the rear. These should all be marked with J14, J10, etc. on the connectors. The markings correspond with markings on the PCB but they don't always indicate the proper polarity. Take your marker and draw a line across the inside of each connector. We will then know when we plug them back in that the side with the black line goes towards center. Do the same on all other connectors (there is one under the front of the drive frame). We are now ready for the heavy work.

Here Goes Nothing..

Remove the drive:

Carefully unplug all seven connectors while noting their positioning. Don't pull on the wires ; Do pull on the plastic connectors. A small needlenose pliers can make this easier for tight fitting connectors. After removing the wires, lift the drive frame up and out of the case and set it aside. Put the four rubber spacers and the four steel pins (if they're loose) in your parts dish.

At last the PCB!

Remove the Printed Circuit Board (PCB):

You are now looking at the PCB. The Chips (ICs) to be replaced are under that large tin cover which is fastened on the foil side (the bottom side in this case) of the PCB with twisted metal tabs. Its purpose is to reduce RFI (interference with TVs, radios, etc.) The PCB is held down to the case with four plastic tabs (two on the newer drives), two on each side. I find it easiest to lift the front of the PCB while bending the tabs with my other hand. The PCB needs to go slightly towards the front then out of the case! Place the PCB with its component side down on your work area.

Remove the metal shield:

The bottom shield on the foil side of the PCB is symmetrical but the top shield has a notched out area in one corner. This notch is for clearance of the solder connections on components R43 and U14. Straighten the tabs and remove the two shields. Turn the PCB over, component side up, and get ready for fun.

Remove the old ICs:

The two 24 pin ICs, U8 and U10, must be removed. Use the flat bladed screwdriver and gently pry the chips out of their sockets and set them aside. These two will not be used again. Remove the 28 pin IC (U9) and set it aside temporarily.

Check the jumpers:

JP1 through JP7 are the jumper wires behind U10. These jumpers might be solid pieces of wire soldered between two pads or a wire with a white ceramic covering around the center. Both types serve the same purpose. JP1 and JP3 should be open (no connection) and JP2 and JP4 should be closed (jumpered). All the drives we have seen so far have the jumpers in the correct locations. Use your soldering iron and move the jumpers only if necessary. The other jumpers JP5 through JP7 should remain as is.

Plug in the chips:

Now carefully plug the new U8 (the larger module) into the socket for U8, with the wire coming out towards the rear of the PCB. Then push the bare end of the wire firmly into pin 17 of socket U9, then plug IC U9 back into its socket. **Note**: Pin 17 is the third pin from the rear of the socket (U9) on the side closest to JP1. For solder freaks, (people who love to use a soldering iron) the wire coming from U8 can be soldered to the unused rear pad on JP3 instead of pushing it into the socket. Now carefully plug the new U10 into its socket with the notch towards the front of the PCB. Wasn't that easy?

REASSEMBLY

Put the shield back on:

If you're unsure of what you are doing then you might want to leave the metal shield off for testing. If you haven't had any problems following us so far then it's all downhill from here. Be careful installing the shield and make sure the notched end of the top piece is over R43 and U14. Also make sure that no components are pinched between the shield and the PCB.

Put the PCB back into the case:

Put the rear in first, then lower the front of the PCB. The PCB should easily snap in place under the plastic tabs.

Reinstall the rubber washers and steel pins:

Press the four rubber washers with the recessed side down, onto the plastic posts in the front half of the drive's case. The four steel pins are either still stuck in the plastic posts or if they were loose, (older drives) take them from your parts dish and put one into each hole at the center of the rubber washers.

Reinstall the drive frame:

Plug the connector from the drive head onto J6 at the front of the PCB. Carefully lower the drive frame onto the steel pins noting that the steel pins fit into holes in the drive frame.

Plug in the connectors:

Plug the rest of the connectors onto the corresponding pin locations. Be sure to note the marking you made on the connectors during disassembly.

Replace the top cover:

To replace the top cover, first line up the bezel over the front of the drive frame, then lower the cover. If the bezel becomes separated put the top cover on first then hook the top of the bezel under the top cover front edge then gently snap it down into place. While holding the case together turn the disk drive upside down and lay it on its back. Screw the six phillips screws back into place and presto!

Your Donel

STARTUP AND TESTING

Plug your drive back into your system. If you're going to use UltraSpeed (US), set your drive switches to drive number one so you can boot up from this drive. Put the SpartaDOS Master disk into the drive, close the door, and power up the computer. Impressed? The MASTER SpartaDOS disk is single density US format. The first few sectors are read at normal speed upon boot. The software determines whether the drive can handle UltraSpeed and then loads the high speed code into your computer. The double density US format is faster since it is working with larger sectors. Refer to the SpartaDOS manual for more information about operation and formats.

If it doesn't work:

Go over the instructions again and check your work. All of our products are thoroughly tested before shipping for high reliability. There is probably something you overlooked. If your drive won't boot the master DOS disk then try a standard boot disk of known quality. If you still can't get it to work, send your complete drive along with the MASTER SpartaDOS disk to us for repair.

Our service turn around time is generally 48 hours. If there is a problem with our parts there will be no charges. If there is a problem with your installation you will be charged a $20.00 flat rate including shipping. If there is a problem with the drive itself, our standard service rate is $40.00 plus parts and shipping. In any case we will send the repaired drive back to you via UPS COD. For repairs, send the drive and mark the box to:

ICD, Inc.
828 Green Meadow Avenue
Rockford, IL 61107

Attn: 1050 Service

Warranty:

Be sure to completely fill out and return your warranty
card. This is the only way you will be eligible for future
updates or enhancements. The warranty is not transferrable
and is intended for you as the end user only.

Note: The warranty will be considered null and void if
the copyright labels are removed from the ICs or if the
hybrid module has been tampered with.

SPECIAL CONSIDERATIONS

Format:

Though the U S Doubler is optimized for operation with
SpartaDOS, any 'Atari Compatible' DOS will function with
it properly. When changing from SpartaDOS to another
brand of DOS, and using the format command, first turn
the drive power off, and then back on (cold start) to
reinitialize the internal format settings. Failure to
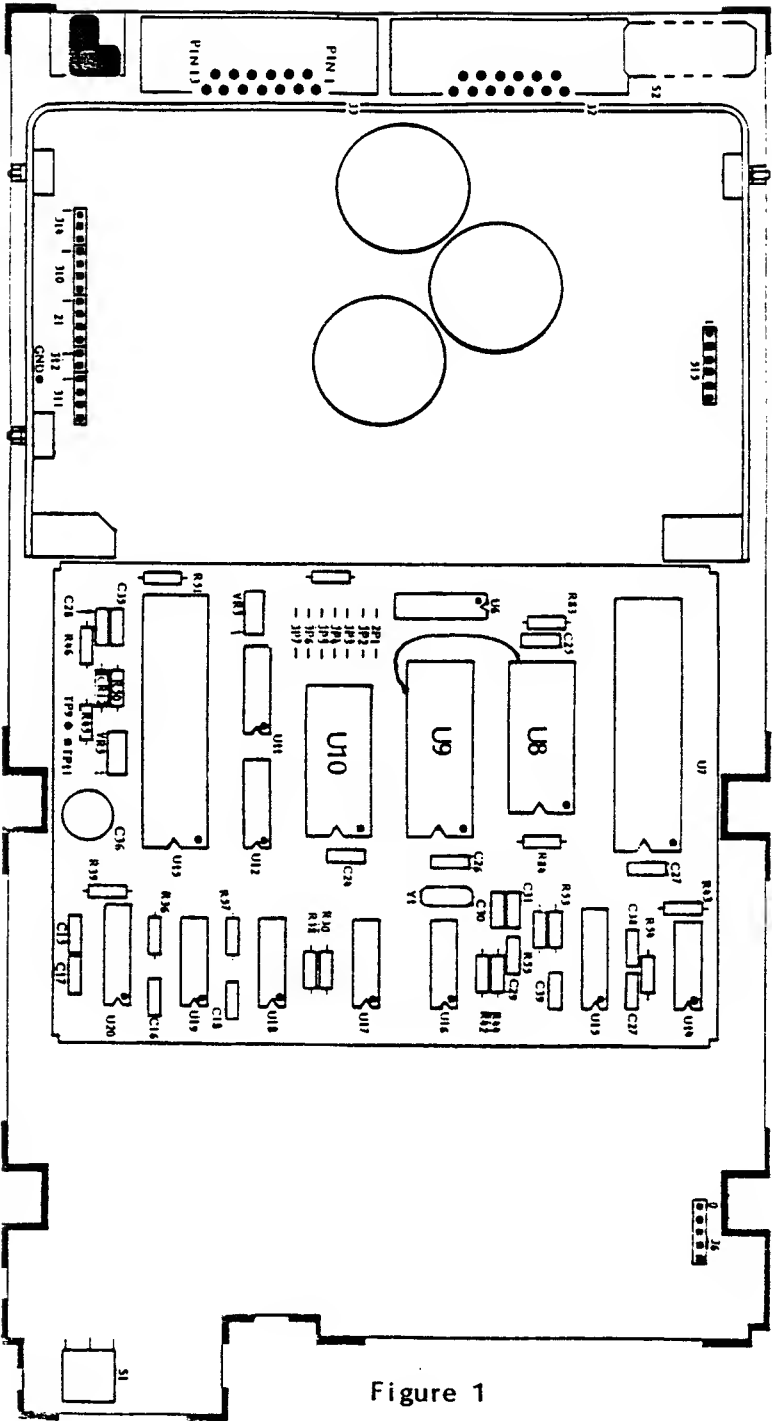do this could create format errors with the other DOS.

Figure 1

1050 P C B Layout